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Brief History of Prospector Square

Prospector Square is located in the NE 1/4 section 9, T25, R4E of the Park City East Quadrangle and is approximately 1/2 mile east of the intersection of highway 224 on Alt 40. Park City is located in Summit County and is approximately 30 miles east of Salt Lake City.

Mill tailings were first deposited on Prospector Square in the early 1900's by several mining companies (mostly silver). It was thought that some of the tailings were slurried to Prospector Square by use of Silver Creek. Mill tailings were deposited on-site until the 1930's. The tailings cover approximately 80 acres and range in depth from 1 to 10 feet. The Silver Creek Site consists of an estimated 700,000 tons of tailings.

In the early 1940's Pacific Bridge reworked the tailings. Solvents and acids were used to leach out silver. Pacific Bridge used an in situ treatment so the tailings never left Prospector Square. Exact details on Pacific Bridges operation cannot be found, they have long since been out of business.

In the late 70's and early 80's commerical developers started building homes and businesses on Prospector Square. The tailings were not properly covered and are still exposed in undeveloped areas of Prospector Square. A population of approximately 10,000 persons live or have businesses on this site (300 persons on the tailings).

The Utah State Department of Health (USDH) first became aware of a potential problem on Prospector Square when the Utah Geological and Mineral Survey (UGMS) was asked by Park City to do a special geological study in 1984. The study was designed to look at the engineering geology of Park City for future development. During the study the UGMS took boreholes soil samples on Prospector Square. The analytical results of the soil samples showed concentrations of lead at 4000 ppm, cadmium at 89 ppm, arsenic at 400 ppm and silver at 70 ppm. EPA's EP tox limit for lead is 5 ppm and cadmium is 1 ppm.

After receiving UGMS's results, the USDH collected water samples off Silver Creek which showed higher concentrations of lead below Prospector Square when compared with the samples taken above Prospector Square. The upstream sample yeilded lead at 5 ppb, cadmium at 5 ppb, arsenic at 2 ppb and the downstream yielded 112 ppb for lead, 8 ppb for cadmium and 6ppb for arsenic. The MCL for lead was 50 ppb (SDWA).

In April 1984, the USDH along with Summit County Health Department and the Rocky Mountain Center of Occupational and Envrionmental Health conducted a health effect study. Blood samples were taken from 39 children. The highest child's blood

lead level found was 28 mg/deciliter, and the average was 9 mg/deciliter. Lead determinations found that the average blood lead concentration for the pontentially exposed group was 9.5 micrograms per 100 cc of blood, while the comparison group averaged 7.5 micrograms per 100 cc. In October 1984, blood samples were again collected from the potentially exposed group (the average blood lead was 10.5 micrograms per 100 cc) and a comparison group of children (the mean blood lead was 9.5 micrograms per 100 cc). This slight increase between the pre-summer and post-summer blood lead levels in these children were not statistically significant. There were three children that exceeded the Centers for Disease Control guidelines of 25 micrograms per 100 cc of blood lead. There was a general lack of significant increase in the average blood lead concentrations of Prospector Square children when compared to children who did not live in this community.

Dust samples were taken during the site inspection conducted in June 1984. Three homes were samples and the analytical results of one home showed concentrations of lead at 4072 ug/g, silver at 28 ug/g and cadmium at 42 ug/g.

With the additional information, the site was rescored for NPL consideration. The new score given Prospector Square was 46.63. This is above the cutoff point of 28.50.

HRS Score:

S_M= 46.63 (S_{gw}= 61.4, S_{sw}= 25.5, S_a= 45.77)
S_{FE}= 0
S_{DC}= 50

ATSDR report

The Agency for Toxic Substances and Disease Registry (ATSDR) completed a report dated October 2, 1986. The Silver Creek Tailings contain elevated levels of heavy metals. They are uncontained, accessible to the inhabitants of Prospector Square, and a potential source of contamination to ground and surface water in the Park City area. Limited environmental sampling has shown elevated levels of lead, cadmium, and other heavy metals in various media. The Silver Creek Site represnets a potential health threat to are aresidents. The survey of children in the Prospector Square community did not indicate that their blood lead levels were generally elevated when compared to children who lived away from the site. Additional environmental sampling is needed to adequately characterize the site as it relates to public health.

Mr. Tony Ivan-Smith

Mr. Ivan-Smith lives within Prospector's Square at 2167 Little

Bessie. His rear yard tested at 2190 ppm and the sandlot tested at 2210 ppm for lead in October 1994.

Changes in Blood Lead Levels

The blood lead level was 25 micrograms Pb/deciliter blood (approximately two fluid ounces) in 1988 and changed to 10 micrograms/deciliter in 1990 due to increased understanding brought about by epidemiologic studies **(definition: a branch of medical science that deals with the incidence, distribution, and control of disease in a population. the sum of the factors controlling the presence or absence of a disease or pathogen).**

The integrated life-time average is the concern. Lead bioaccumulates in bone, but the bone is not the target organ. The target organ is the nervous system.

Silver Maple/Richardson Flats

Based on the review of Preliminary Assessment/Site Investigation information provided to EPA through Septmeber 9, 1994, EPA has made a determination to require no further CERCLA action on the Silver Maple Claims Site.

Richardson Flats was propsed in 1980s and removed by EPA because EPA did not have adequate data to respond to a comment from Park City Mines (a PRP) regarding the air exposure pathway and associated air monitoring. EPA has reproposed the site due to State influence in 1990.

Screening levels for Lead

See OSWER Directive #9355.4-12, dated July 14, 1994. Range of 400-5000 ppm, limited interim controls are recommended depending on conditions at the site, while above 5000 ppm, soil abatement is recommended.

For Mining sites, must consider the bioavailability. Typically, tailings from mines are not very soluable and are not as bioavailable as other lead sources which are easily dissolved (e.g., lead-battery waste).

Other sources for lead exposure: reloading ammunition, leaded glass/stain glass; electronics/lead soldering; pottery (mexican/italian)

Need to look into the LDS property adjacent to the High School.